

be related to V. canadensis (L.) Britton, also of North America. Actually, the resemblance to any of these species is not very marked. It appears to me to resemble much more closely Verbena hookeriana (Covas & Schnack) Moldenke and V. crithmifolia Gill. & Hook., of Argentina, Chile, and Ecuador.

Rose & Rose 22400 was misidentified by B. L. Robinson as V. microphylla H.B.K. The Berlin sheet of Hartweg 1352 is labeled "Columbien", and the Geneva sheet is inscribed "Quito-Popayan-Bogota", but the New York and Brussels duplicates plainly indicate that the collection was made at Riobamba, near Quito, Ecuador. The Sodirol 126/18 at Berlin has an annotation saying "soll wohl 125/18 heissen." Inexplicably, Bentham (1876) calls this a Mexican species -- "V. inflata, H. B. et K., species Mexicana..."

In all, 76 herbarium specimens, including the types of all the names involved, and 4 mounted photographs have been examined.

Citations: ECUADOR: Chimborazo: André K.1549 (K, N); Asplund 5932 (S), 20464 (S); Fagerlind & Wibom 798 (S), s.n. (S); Rauh & Hirsch E.49 (Z); Rimbach 163 (B), 465 (Mi, S); Rose & Rose 22400 (G, N); Schimpff 727 (Cb, E--1080111), 746 (A, Cb, Cb, E--1087389). Cotopaxi: Weydahl 161 (S). Imbabura: André K.1547 (K, N); Asplund 20228 (S); R. Espinosa 2427 (N); Firmin 366 (N); F. C. Lehmann 6239 (B, K), K.290 (K); Sttbel 130 (B), 139 (B). Pichincha: Asplund 16145 (S), 17069 (S); Bonpland 503 (P--isotype); Collector undesignated 193 (K), 228 (K); Fosberg 22537 (N, N); Hartweg 1352 (B, B, Br, Cb, K, N, P); Heilborn 512 (S); Humboldt & Bonpland s.n. [Regno Quitensi; Herb. Willdenow 11116] (B--type, F--976442--isotype, N--photo of type, Z--photo of type); Jameson s.n. [vicinity of Quito, 1831--2] (La); Moldenke & Moldenke 19786 (Mg, N, No, Ot); Spruce 5891 (Ed, G, K, K, L, N). Tunguragua: Bücher, Hjerting, & Rahn 78 (S); Camp E.2427 (N); Fosberg & Giler 22551 (N); A. S. Hitchcock 21737 (G, N, N). Province undetermined: André K.1548 [Vicente] (N); J. N. Rose 23906 [Luisa] (N); A. Sodirol 126/18 (B, B). PERU: Arequipa: Weberbauer 5749, in part (B, B, G, N, N--photo, Z--photo). Ayacucho: Weberbauer 5749, in part (E--1008707, F--628950). Department undetermined: Collector undesignated s.n. (Cb). LOCALITY OF COLLECTION UNDESIGNATED: Herb. Link s.n. [Am. mer.] (B); Herb. Sprengel s.n. (B).

MATERIALS TOWARD A MONOGRAPH OF THE GENUS DIOSTEA

Harold N. Moldenke

This is the twenty-fifth in my series of works of monographic nature on the genera of Verbenaceae, Avicenniaceae, Stilbaceae, and Symphoremaceae. Previous genera so treated were Aegiphila

Jacq., Amasonia L. f., Avicennia L., Baillonia Bocq., Bouchea Cham., Casselia Nees & Mart., Castelia Cav., Chascanum E. Mey., Citharexylum B. Juss., Cornutia Plum., Hierobotana Briq., Parodianthus Troncoso, Petitia Jacq., Petrea Houst., Priva Adans., Pseudocarpidium Millsp., Recordia Moldenke, Rehdera Moldenke, Rhaphithamnus Miers, Stylodon Raf., Svensonia Moldenke, Tectona L. f., Vitex Tourn., and the New World and cultivated members of Callicarpa L.

Full explanation of the abbreviations employed herein for the names of the 255 herbaria whose material was examined, in whole or in part, in the preparation of these works will be found in *Phytologia* 5: 154--159 (1955), 6: 242 (1958), and 7: 91--92 (1959), 123--124 (1960), and 293 (1960).

DIOSTEA Miers, *Trans. Linn. Soc. Lond. Bot.* 27: 102, pl. 28. 1870.

Synonymy: Baillonia Benth. ex Rehd., *Bibl. Cult. Trees* 583, in syn. [as "sensu Benth."]. 1949; Moldenke, *Résumé* 236, in syn. 1959 [not Baillonia Bocq., 1862].

Literature: Hook., *Bot. Misc.* 1: 161--162, pl. 47. 1829; Walp., *Repert. Bot. Syst.* 4: 72. 1845; Schau. in A. DC., *Prodr.* 11: 544, 545, 556, 573, & 614. 1847; C. Gay, *Hist. Fis. Chile Bot.* 5: 20--22 & 30. 1849; R. A. Phil., *Linnaea* 29: 21--22 & 31. 1857; R. A. Phil., *Anal. Univ. Chile* 2: 402. 1862; Turcz., *Bull. Soc. Imp. Nat. Mosc.* 36 (2): 195. 1863; R. A. Phil., *Linnaea* 33: 196. 1864; R. A. Phil., *Anal. Univ. Chile* 35: 192--193. 1870; Miers, *Trans. Linn. Soc. Lond. Bot.* 27: 102--108, pl. 28. 1870; Benth. in Benth. & Hook. f., *Gen. Pl.* 2: 1133, 1143--1144, & 1146. 1876; Griseb., *Abh. K. Gesell. Wiss. Götting.* 24: [Symb. Fl. Argent.] 276. 1879; F. Phil., *Cat. Pl. Vasc. Chil.* 217. 1881; Jacks., *Ind. Kew.* 1: 264, 768, & 777 (1893), 2: 95 & 96 (1894), and 2: 1178 & 1179. 1895; S. Moore, *Trans. Linn. Soc. Lond. Bot.*, ser. 2, 4: 438. 1895; R. A. Phil., *Anal. Univ. Chile* 90: 623. 1896; Briq., *Bull. Herb. Boiss.* 4: 342--343. 1896; Hook. f. in Curtis, *Bot. Mag.* 126: pl. 7695. 1900; Eriq., *Ann. Conserv. & Jard. Bot. Genève.* 4: 22. 1900; Speg., *Anal. Soc. Cient. Argent.* 53: 242. 1902; Thiselt.-Dyer, *Ind. Kew. Suppl.* 2: 23 & 61. 1904; Macloskie in W. B. Scott, *Rep. Princeton Univ. Exped. Patagonia* 8 (2): 691. 1905; Reiche, *Fl. Chile* 5: 282--283 & 298. 1910; Bean, *Trees & Shrubs* 1: 495. 1914; Hosseus, *Trab. Inst. Bot. & Farm. Fac. Cienc. Med. Buenos Aires* 33: 67. 1915; Skottsberg, *Kungl. Svensk. Vetens. Handl.* 56 (5): 292. 1916; Rothkugel, *Bosques Pat.* 194. 1916; Sanzin, *Anal. Soc. Cient. Argent.* 88: 103--104 & 122--123. 1919; J. W. C. Kirk, *Brit. Fl. Gard.* 433. 1927; Baeza, *Nomb. Vulg. Pl. Silv. Chile*, ed. 2. 1930; Stapf, *Ind. Lond.* 2: 501 (1930), 4: 125 (1930), and 6: 431. 1931; Moldenke in Fedde, *Repert. Sp. Nov.* 37: 217. 1934; Junell, *Symb. Bot. Upsal.* 4: 11--13, 15, 31, 32, 37, 78, & 210, fig. 7, 54, & 55. 1934; Latzina, *Trab. Inst. Bot. & Farm. Fac. Cienc. Med. Buenos Aires* 54: 79. 1935; Moldenke in Fedde, *Repert. Sp. Nov.* 41: 62 & 134. 1936; H. S. Marshall, *Kew Bull.* 1936: 87. 1936; Moldenke, *Revist. Sudam. Bot.* 5: 1. 1937; Latzina, *Lilloa* 1:

189. 1937; Moldenke, Geogr. Distrib. Avicenn. 1, 28, 29, & 39. 1939; Moldenke, Alph. List Common Names 8 & 26. 1939; Moldenke in Fedde. Repert. Spec. Nov. 46: 201. 1939; Moldenke, Lilloa 5: 386-389. 1940; Moldenke, Prelim. Alph. List Invalid Names 6, 15, 16, 24, 31, 38, 45, 46, 48, 55, & 56. 1940; Moldenke, Suppl. List Invalid Names 4--7 & 12. 1941; Moldenke, Darwiniana 5: 168--171, 175, & 177. 1941; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 42, 43, 73, & 92. 1942; Moldenke, Alph. List Invalid Names 6, 13, 14, 23, 27, 31, 32, 39, 46, 48, & 50. 1942; Moldenke, Lilloa 10: 369. 1944; Moldenke, Phytologia 2: 102. 1944; Darlington & Janaki Ammal, Chromosome Atl. 271. 1945; Moldenke, Alph. List Cit. 1: 16, 28, 34, 38, 59, 76, 77, 80, 88, 96, 101, 105, 120, 123, 131, 135, 136, 166, 190, 230, 233--235, 247, 251, 262, 265, 276, 316, & 326. 1946; E. J. Salisb., Ind. Kew. Suppl. 10: 76. 1947; Moldenke, Alph. List Cit. 2: 348, 350, 367--369, 372, 389, 411, 415, 416, 425, 437, 441, 443, 446, 498, 504, 535, 537, 554, 555, 565, 576, 599, 600, & 640. 1948; H. N. & A. L. Moldenke, Pl. Life 2: 31 & 43. 1948; Rehd., Bibl. Cult. Trees 583. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 100, 103, 160, & 185. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 6. 1949; Moldenke, Alph. List Cit. 3: 667, 671, 686, 700, 722, 731, 735, 748, 750, 767, 772, 781, 798, 802, 812, 813, 823, 843, 848, 894, 910, 917, & 951 (1949) and 4: 980, 1030, 1049, 1050, 1056, 1062, 1064, 1067, 1068, 1070, 1071, 1090, 1098, 1104, 1115, 1116, 1128, 1187, 1191, 1199, & 1209. 1949; Moldenke, Journ. Calif. Hort. Soc. 15: 84. 1954; Boelcke, Revist. Invest. Agric. 11: 87 & 88. 1957; Moldenke, Phytologia 6: 254 & 255. 1958; Moldenke, Résumé 120, 123, 218, 236, 253, 255, 256, 278, 301, 310, 313, 317, 340, 362, 367, 374, 379, 406, & 454. 1959; Moldenke, Résumé Suppl. 1: 23 & 25 (1959) and 2: 5, 8, & 9. 1960.

Low shrubs of the Andean region of Argentina and Chile; stems mostly branched from the base; branches abundant, virgate, opposite or in whorls of 4's, twiggy, mostly erect or ascending; branchlets and twigs often erect or ascending, terete, often fistulose or subfistulose and nigrescent in drying, often more or less aphyllous, with the aspect of Ephedra; nodes mostly distant; leaves decussate-opposite, small, deciduous, caducous, linear or oblong to ovate, mostly entire and sessile, sometimes dentate and short-petiolate; inflorescence terminal, rather loosely or densely spicate, often nigrescent in drying; flowers sessile or very short-pedicellate, hypogynous, complete, perfect, subtended by small bractlets; calyx gamosepalous, persistent, cylindric, slightly zygomorphic, its rim unequally 5-dentate, the teeth subulate; corolla gamopetalous, hypocrateriform, zygomorphic, cylindric at the base, the tube usually about 2--3 times as long as the calyx, slightly incurved, long-hirsute with white retrorse hairs toward the front within, the limb somewhat oblique, 5-lobed, the lobes small, ovate or oblong, spreading, entire or often subemarginate at the apex; fertile stamens 4, inserted at about the middle of the corollatube, included, in two superposed pairs; filaments rather short, filiform, glabrous, the 2 upper ones anterior and slightly long-

er, the 2 lower ones posterior and slightly shorter, a fifth stamen often represented by a sterile staminode situated between the posterior stamens and much shorter; pistil one, compound, 1-carpellary; style included, filiform, compressed, gradually dilated toward the subobliquely truncate apex, the upper or lower side uncinately recurved; stigma globose or subglobose, papillose; ovary oblong, on a cushion-like disk, in its early development from a single carpel like that of Casselia Nees & Mart., at first imperfectly 1-celled, two short parallel semisepta advancing from the sulcated anterior side across the center, where they are each reflected, while, as growth continues, two other semisepta advance from the posterior wall and, uniting with the first two, make the ovary 2- or 4-celled when mature, the cells lateral and usually 1-ovulate, rarely 2-ovulate, the ovules erect, the dissepiment plainly 2-lamellate for its entire length; fruit drupaceous or schizocarpous, ovate, enclosed by the swollen persistent calyx, composed of two pyrenes, the pericarp rather dry, smooth, shiny; pyrenes lateral in respect to the axis, plano-convex, dry, horny, dark, smooth, 1-celled, usually 1-seeded, rarely 2-seeded, convex outside, flat inside, with the margins rounded within, having at the base on the anterior side a long oval white placentiferous patch, covering a small foramen which leads into the base of the cell, continuous with a laterally ascending raphe the whole length of the seed and terminating in a small apical chalaza; seeds anatropous; embryo without endosperm; cotyledons 2, thickly fleshy, paralleling the inner face of the pyrenes, about 3 times as long as the conic inferior radicle.

The type species of this small genus, comprising only three known species from Chile and Argentina, is Verbena juncea Gill. & Hook. [= Diostea juncea (Gill. & Hook.) Miers]. Miers notes that the characters of the fruit and seed are essentially those of Dipyrena Hook., with the important difference that in Diostea the pyrenes ["nucules"] are 1-locular. He says "Schauer in his monograph of the family, places D. juncea in Lippia and D. scoparia in Verbena, stating erroneously that its fruit is a 4-coccous capsule." The two species are obviously closely related and Schauer's Verbena cinerascens certainly belongs with them.

A key for the identification of the species of Diostea:

1. Young parts densely white-pubescent.....D. cinerascens.
- 1a. Young parts glabrous or essentially so.
 2. Branches and branchlets usually not nigrescent; leaves not very noticeably caducous, the blades 0.6--3 cm. long and 2--9 mm. wide.....D. juncea.
 - 2a. Branches and branchlets nigrescent; leaves always caducous, the blades 3--4 mm. long and about 2 mm. wide...D. scoparia.

Miers makes the following interesting comments: "From Verbena it is manifestly distinct and it differs from Lippia in its peculiar habit, its inflorescence, and in its corolla with a 5-lobed

(not 4-lobed) border, and other particulars. Walpers, in his arrangement of the genus Verbena, places the species of this group in a separate division, Juncea, in which he includes V. ephedroides, V. alata, and V. sagittata of Chamisso; but these belong to Verbena, having a fruit of four mucules; he also includes V. glauca and V. aphylla, Hook. & Gill., which do not possess the features of Diostea, their fruit being that of Verbena." Actually, V. aphylla is Neosparton aphyllum (Gill. & Hook.) Kuntze and V. glauca is Junellia glauca (Gill. & Hook.) Moldenke.

The generic name, Diostea, is derived from the Greek, $\delta\iota$ (two) and $\sigma\tau\acute{\epsilon}\alpha$ (nutlets).

DIOSTEA CINERASCENS (Schau.) Moldenke, Revist. Sudam. Bot. 5: 1. 1937.

Synonymy: Citharexylum alpinum Poepp. ex Walp., Repert. Bot. Syst. 4: 78, in syn. 1845. Verbena cinerascens Schau. in A. DC., Prodr. 11: 545. 1847. Citharexylum alpinum Poepp. ex Schau. in A. DC., Prodr. 11: 545, in syn. 1847. Verbena spartioides Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 195. 1863. Verbena spartioides Turcz. ex Moldenke, Alph. List Invalid Names 50, in syn. 1942. Citharexylum andinum Poepp. ex Moldenke, Résumé Suppl. 2: 8, in syn. 1960 [not Citharexylum andinum Moldenke, 1934].

Literature: Walp., Repert. Bot. Syst. 4: 16 & 78. 1845; Schau. in A. DC., Prodr. 11: 545 & 614. 1847; Turcz., Bull. Soc. Imp. Nat. Mosc. 36 (2): 195. 1863; Jacks., Ind. Kew. 2: 1179. 1895; Reiche, Fl. Chile 5: 282--283. 1910; Moldenke, Revist. Sudam. Bot. 5: 1. 1937; Moldenke, Geogr. Distrib. Avicenn. 28. 1939; Moldenke, Prelim. Alph. List Invalid Names 16 & 45. 1940; Moldenke, Lilloa 5: 386. 1940; Moldenke, Alph. List Invalid Names 14, 46, & 50. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 42 & 92. 1942; Moldenke, Alph. List Cit. 1: 190, 230, & 262. 1946; E. J. Salisbury, Ind. Kew. Suppl. 10: 76. 1947; Moldenke, Alph. List Cit. 2: 411 (1948), 3: 686, 700, 823, & 843 (1949), and 4: 1062 & 1098. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 100 & 185. 1949; Moldenke, Résumé 120, 255, 362, 374, & 454. 1959; Moldenke, Résumé Suppl. 1: 23 & 25 (1959) and 2: 5 & 8. 1960.

Small shrub, to 2 m. tall, with erect habit, very much branched; branches and branchlets acutely tetragonal, twiggy, erect, the angles more or less margined, the young parts and twigs densely white-pubescent with closely appressed strigose hairs or sometimes spreading-subtomentose on vigorous shoots, glabrescent in age; twigs numerous, short, slender, acutely tetragonal, densely white-pubescent except on the angles; principal internodes 1--3.5 cm. long; nodes distinctly annulate, often slightly contracted, usually bearing a pair of opposite, stipule-like, stramineous or scarious, triangular scales on larger branchlets, these actual petiole-bases often united by a narrow annular membrane; leaves decussate-opposite, remote, caducous, the uppermost

sessile, the lower and larger ones short-petiolate; petioles, when present, very slender, 1--2.5 mm. long, sparsely strigillose, dilated and discolored at the base and decurrent into the branchlet-angles; leaf-blades chartaceous, linear or oblong-lanceolate to narrow-elliptic, small, 4--25 mm. long, 1--8 mm. wide, acute or subacute at the apex, acute or acuminate at the base and more or less narrowed into the petiole, often slightly falcate, the margins entire and usually revolute, uniformly green on both surfaces, brunneous or nigrescent in drying, sparsely white-strigillose or strigose-hirtous on both surfaces; midrib and lesser venation indiscernible above and obscure beneath, under a handlens a very slender midrib and several very short secondaries may be discerned beneath and found to be slightly prominulous; inflorescence terminal, spicate, 3--10 cm. long; spikes often few-flowered, usually loosely-flowered, usually about 2.5 cm. long, the flowers in several to many opposite pairs, each pair subtended by a pair of small linear-oblong sessile bracts resembling the leaves in all respects but smaller, about 1/3 as long as the calyx; peduncles and rachis continuous with the twigs and similar in all respects, the peduncle and sympodia mostly about the same length as the internodes just below, occasionally the spikes contracted, sympodia abbreviated, and flowers crowded even in anthesis (as they always are in bud at the tips of not fully matured spikes); flowers sessile, with the fragrance of heliotrope (Heliotropium arborescens L.); calyx about 4 mm. long, half as long as the corolla-tube, its rim unequally and acutely 5-dentate; corolla varying from blue, lilac, or lavender to white or white with a pink tinge, sometimes rose-colored, yellow in the center, its tube subinfundibular, slightly recurved, twice as long as the calyx, the limb rather large, 5-parted, spreading.

The species is found on rocky slopes, in rocky sunny places, and on steep dry hillsides, from 750 to 2010 meters altitude, and is called "heliotropo silvestre" locally. It has been found in anthesis from July to November, and in fruit in November. The species is based on C. Gay 944 and s.n. and on Poeppig 9, II.85, and s.n., the first two of these from Coquimbo, Chile, and the last three from Rio Colorado to La Guardia de los Horillos, Chile. Poeppig 9 is also the type collection of Citharexylon andinum Poepp.; it bears a label reading: "No. 9 Citharexylon andinum Poepp. Diar. 558", apparently a reference to page 558 in Poeppig's original diary. Walpers cites II.85 and 9 as Verbena scoparia Gill. & Hook. and reduces the names Citharexylon alpinum alpinum and Citharexylum? alpinum to that species. The type of Verbena spartioides is MacRae 43 [826] from Cumbre, Aconcagua, Chile.

Wagenknecht describes the species as "scarce", while Worth & Morrison note that it is mostly in seed in November. The Grandjots report that it grows from 900 to 2010 meters altitude in Coquimbo -- their no. 185n bears a note to see no. 133n, but I

have not as yet been able to see the latter number.

In all, 26 herbarium specimens, including the types of all the names involved, and 6 mounted photographs have been examined.

Citations: CHILE: Aconcagua: MacRae 43 [826; Cumbre, 1825] (K, Z--photo). Atacama: Poeppig 9 [Macbride photos 7855, in part] (Kr--photo of cotype, N--photo of cotype); II.85 (P--cotype). Coquimbo: Biese 1778 (N, S), 1827 (N), 1885 (N, S); C. Gay 944 (P--cotype), s.n. [1839; Macbride photos 7855, in part] (E--photo of cotype, K--cotype, Kr--photo of cotype, N--cotype, N--photo of cotype, N--cotype, P--cotype, P--cotype); Grandjot & Grandjot 185n (N); W. H. Harvey s.n. [Coquimbo, July--August 1856] (K, N, S); Wagenknecht 18421 (Ca--656099), s.n. [Herb. Looser 4022] (N); Worth & Morrison 16497 (Ca--636382). Ovalle: Claude-Joseph 4996 (W--11422118). Santiago: Looser 5510 (N). Valparaiso: Bridges s.n. [Valparaiso] (K). Province undetermined: C. Elliott 220 [Jahuel] (K, N); E. C. Reed s.n. (K).

DIOSTEA JUNCEA (Gill. & Hook.) Miers, Trans. Linn. Soc. Lond. Bot. 27: 103--104, pl. 28. 1870.

Synonymy: Verbena juncea Gill. & Hook. in Hook., Bot. Misc. 1: 162. 1829. Lippia juncea Schau. in A. DC., Prodr. 11: 573. 1847. Verbena juncea Hook. & Gill. ex Schau. in A. DC., Prodr. 11: 556, in syn. 1847. Dipyrena valdiviana R. A. Phil., Linnaea 29: 21--22. 1857. Dipyrena dentata R. A. Phil., Linnaea 29: 22. 1857. Lippia scirpea R. A. Phil., Linnaea 33: 196. 1864. Priva dentata R. A. Phil. ex Miers, Trans. Linn. Soc. Lond. Bot. 27: 104, in syn. 1870. Diostea stenophylla Miers, Trans. Linn. Soc. Lond. Bot. 27: 105. 1870. Diostea filifolia Miers, Trans. Linn. Soc. Lond. Bot. 27: 106. 1870. Diostea scirpea Miers, Trans. Linn. Soc. Lond. Bot. 27: 107. 1870. Diostea valdiviana Miers, Trans. Linn. Soc. Lond. Bot. 27: 107. 1870. Diostea infusata Miers, Trans. Linn. Soc. Lond. Bot. 27: 107--108. 1870. Lippia juncea Gay ex Miers, Trans. Linn. Soc. Lond. Bot. 27: 107. 1870. Baillonia juncea Benth. in Benth. & Hook. f., Gen. Pl. 2: 1144. 1876. Baillonia juncea Benth. & Hook. f. ex Jacks., Ind. Kew. 1: 264. 1893. Citharexylum germaini Briq., Bull. Herb. Boiss. 4: 342--343. 1896. Diostea chamaedryfolia Hort. ex Hook. f. in Curtis, Bot. Mag. 126: pl. 7695. 1900. Baillonia juncea Benth. & Hook. ex Junell, Symb. Bot. Upsal. 4: 31. 1934. Diostea juncea Miers ex Junell, Symb. Bot. Upsal. 4: 31. 1934. Lippia juncea (Miers) Gill. & Hook. ex Junell, Symb. Bot. Upsal. 4: 210. 1934. Verbena juncea Gill. apud Latzina, Lilloa 1: 189, in syn. 1937. Baillonia juncea (Gill. & Hook.) Benth. ex Moldenke, Prelim. Alph. List Invalid Names 6, in syn. 1940. Baillonia juncea (Gill. & Hook.) Benth. & Hook. f. ex Moldenke, Prelim. Alph. List Invalid Names 6, in syn. 1940. Baillonia glauca Elliott ex Moldenke, Prelim. Alph. List Invalid Names

6, in syn. 1940. Citharexylon germaini Briq. ex Moldenke, Prelim. Alph. List Invalid Names 15, in syn. 1940. Diostea valdiviana (R. A. Phil.) Miers ex Moldenke, Prelim. Alph. List Invalid Names 24, in syn. 1940. Dipyrena juncea Griseb. ex Moldenke, Prelim. Alph. List Invalid Names 24, in syn. 1940. Lippia juncea (Gill. & Hook.) Schau. ex Moldenke, Prelim. Alph. List Invalid Names 31, in syn. 1940. Verbena scirpea R. A. Phil. ex Moldenke, Prelim. Alph. List Invalid Names 48, in syn. 1940. Junellia scirpea (R. A. Phil.) Moldenke, Prelim. Alph. List Invalid Names 48, hyponym. 1940. Baillonia juncea Sch. ex Moldenke, Alph. List Invalid Names Suppl. 1: 2, in syn. 1947. Lippia juncea Gill. & Hook. ex Moldenke, Alph. List Invalid Names Suppl. 1: 14, in syn. 1947. Diostea juncea Schau. ex Moldenke, Résumé Suppl. 2: 8, in syn. 1960. Diostea valdiviana Phil. ex Moldenke, Résumé Suppl. 2: 8, in syn. 1960. Dipyrena juncea (Gill.) Hook. ex Moldenke, Résumé Suppl. 2: 8, in syn. 1960.

Literature: Hook., Bot. Misc. 1: 161--162, pl. 47. 1829; Schau. in A. DC., Prodr. 11: 556 & 573. 1847; C. Gay, Fl. Chile 5: 30. 1849; R. A. Phil., Linnaea 29: 21--22. 1857; R. A. Phil., Anal. Univ. Chil. 2: 402. 1862; R. A. Phil., Linnaea 33: 196. 1864; Miers, Trans. Linn. Soc. Lond. Bot. 27: 103--108, pl. 28. 1870; Benth. in Benth. & Hook. f., Gen. Pl. 2: 1144. 1876; F. Phil., Cat. Pl. Vasc. Chil. 217. 1881; Jacks., Ind. Kew. 1: 264, 768, & 777 (1893), 2: 95 & 96 (1894), and 2: 1179. 1895; Briq., Bull. Herb. Boiss. 4: 342--343. 1896; Hook. f. in Curtis, Bot. Mag. 126: pl. 7695. 1900; Speg., Anal. Soc. Cient. Argent. 53: 242. 1902; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 23 & 61. 1904; Macloskie in W. B. Scott, Rep. Princeton Univ. Exped. Patagonia 8 (2): 691. 1905; Reiche, Fl. Chile 5: 298. 1910; Bean, Trees & Shrubs 1: 495. 1914; Hosseus, Trab. Inst. Bot. & Farm. Cienc. Med. Buenos Aires 33: 67. 1915; Rothkugel, Bosques Pat. 194. 1916; Sanzin, Anal. Soc. Cient. Argent. 88: 103--104. 1919; J. W. C. Kirk, Brit. Flow. Gard. 433. 1927; Stapf, Ind. Lond. 2: 501 and 4: 125. 1930; Junell, Symb. Bot. Upsal. 4: 31, 32, 37, 178, & 210, fig. 54 & 55. 1934; Latzina, Trab. Inst. Bot. & Farm. Cienc. Med. Buenos Aires 54: 79. 1935; H. S. Marshall, Kew Bull. 1936: 87. 1936; Moldenke in Fedde, Repert. Sp. Nov. 41: 62. 1936; Latzina, Lilloa 1: 189. 1937; Moldenke, Alph. List Common Names 26. 1939; Moldenke, Geogr. Distrib. Avicenn. 29 & 39. 1939; Moldenke, Prelim. Alph. List Invalid Names 6, 15, 24, 31, & 48. 1940; Moldenke, Suppl. List Invalid Names 4, 6, & 12. 1941; Moldenke, Alph. List Invalid Names 6, 13, 14, 23, 27, 31, 32, & 50. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 42, 43, 73, & 92. 1942; Moldenke, Lilloa 10: 369. 1944; Moldenke, Phytologia 2: 102. 1944; Darlington & Janaki Annal, Chromosome Atl. 271. 1945; Moldenke, Alph. List Cit. 1: 16, 28, 34, 38, 59, 76, 77, 80, 88, 101, 105, 120, 123, 135, 136, 190, 230, 233--235, 247, 265, 316, & 326. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 2, 9, & 14. 1947; Moldenke, Alph. List Cit. 2: 348, 350, 368, 389, 415, & 416, 425, 437, 441, 446, 498, 554, 555, 565, 576, & 640 (1948),

3: 667, 671, 700, 722, 731, 735, 748, 750, 767, 798, 812, 813, 823, 843, 848, 894, 917, & 951 (1949), and 4: 980, 1030, 1049, 1050, 1056, 1064, 1067, 1068, 1071, 1104, 1115, 1116, 1128, 1187, 1191, 1199, & 1209. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 100, 103, 160, & 185. 1949; Rehd., *Bibl. Cult. Trees* 583. 1949; Moldenke, *Journ. Calif. Hort. Soc.* 15: 84. 1954; Boelcke, *Revist. Invest. Agric.* 11: 27, 87-88, fig. 27C, & 96. 1957; Moldenke, *Phytologia* 6: 254 & 255. 1958; Moldenke, *Résumé* 120, 123, 218, 236, 253, 256, 278, 301, 313, 317, 340, 367, 374, & 454. 1959; Moldenke, *Résumé Suppl.* 2: 5 & 8. 1960.

Illustrations: C. Gay, *Hist. Fis. Chile Bot.* 5: [30]. 1849; R. A. Phil., *Anal. Univ. Chil.* 35: 193. 1870; Miers, *Trans. Linn. Soc. Lond. Bot.* 27: pl. 28. 1870; Hook. f. in Curtis, *Bot. Mag.* 126: pl. 7695 (colored). 1900; Briq., *Ann. Conserv. & Jard. Bot. Genève.* 4: [22]. 1900; Bean, *Trees & Shrubs* 1: 495. 1914; Sanzin, *Anal. Soc. Cient. Argent.* 88: 104. 1919; Junell, *Symb. Bot. Upsal.* 4: fig. 54 & 55. 1934; Boelcke, *Revist. Invest. Agric.* 11: 87, fig. 27C. 1957.

Much-branched tall shrub, bush, or tree, with straggling growth, 1--5 m. tall, sometimes giving the appearance of a perennial herb, with broom-like habit; stems woody, gray; branches and branchlets slender, ascending, terete or subterete, twiggy, longitudinally many-striate, glabrous, shiny, stramineous or brownish in drying, not nigrescent; twigs mostly minutely puberulent; pith large, round; principal internodes 1.7--8.5 cm. long; nodes distinctly annulate and contracted, often minutely puberulent, those on the older branches usually bearing a pair of scarious or stramineous triangular closely appressed scales which are the expanded petiole-bases; leaves decussate-opposite, more persistent (less pronouncedly caducous) than in the other species of the genus, often numerous, rather uniformly shiny-green on both surfaces, petiolate, not nigrescent in drying; petioles slender, 1--4 mm. long, minutely puberulent and ciliolate-margined, or glabrescent, thickened and expanded at the base in age, the base persisting on older nodes after the blades and upper portion of the petiole have fallen off, these bases being to 4 mm. long and wide, stramineous, incrassate, appressed or patent; leaf-blades somewhat fleshy when fresh, chartaceous and brittle when dried, oblanceolate or elliptic, rarely lanceolate, 0.6--3 cm. long, 2--9 mm. wide, acute at the apex, cuneately attenuate or acute at the base, entire or sparsely dentate above the middle or near the apex, rarely dentate from the base to the apex, minutely and very obscurely pulverulent-puberulent or glabrate on both surfaces, the teeth coarse, triangular, acute, antrorsely spreading; midrib slender and impressed (especially at the base) above, rather broad and flattened or subprominent beneath; secondaries very slender, 2--5 pairs, very short or some more elongate and leading to the apex of the teeth, ascending; inflorescence spicate, terminal or sometimes also axillary; spikes densely many-flowered, numerous, 1.3--8 cm. long, 1.5--2 cm. wide during anthesis, sessile or short-pedunculate; peduncles (when present) not continuous with the twigs, very slender, much more slender than the ad-

jacent twig, densely short-pubescent with gray spreading hairs; rachis similar to the peduncles in texture and pubescence, with greatly abbreviated and numerous sympodia; flowers borne in pairs or whorls on the rachis, crowded, fragrant, nigrescent when dry, the calyx erect, but the corolla curving downwards; bracts and bractlets apparently obsolete; pedicels scarcely 2 mm. long; prophylla scale-like, ovate or oblong, 3--4 mm. long or often only half as long as the calyx, 1.5--2 mm. wide, acute or mucronate at the apex, subcuneate at the base, often with a carinate midrib, puberulent; calyx short, membranous or submembranous, often very thin-textured, sometimes somewhat fleshy, cylindric before anthesis, later becoming campanulate-tubular or ovate-inflated, 4--6 mm. long, 5-nerved, often constricted at the apex, subrugulose, varying from puberulent or subpilosulous to pubescent or short-pilose, especially toward the base, usually finally glabrous and shiny, the rim obliquely 5-dentate, the teeth small, unequal, triangular or long-subulate with excurrent veins, often pilose on the inner surface, the shorter one posterior; corolla exerted from the calyx, often very thin-textured, usually 3--4 times as long as the calyx, subhorizontal, curvate, varying from white or bluish-white to clear-blue, pale-lilac, or rosy, usually at first blue or violet and later turning white, often sulphur-yellow with black veins when dry, the tube subinfundibular, 5--8 mm. long, sometimes twice as long as the calyx or exceeding the calyx-rim by 7 mm., cylindric at the base, ampliate beneath the apex, somewhat contracted beneath the limb, somewhat incurved, parallel-veined, glabrous or puberulent on the outer surface, hirsute within from the apex to below the middle with long white retrorse hairs, the limb 4- or 5-parted, obovate-rotund, about 8 mm. wide, the upper lobe deeply bifid, the lobes very short, oblong, patent, 1--2.5 mm. long, entire-margined, subemarginate at the apex, the upper ones somewhat broader; stamens rather short, didynamous, inserted in the lower third of the corolla-tube, included, the upper ones inserted lower and with shorter filaments than the lower ones; filaments glabrous, the upper ones about 1.2 mm. long, the lower ones about 2 mm. long; anthers ovoid, about 1 mm. long; the fifth stamen sterile, sometimes anantherous, sometimes very short and anantherous or even lacking, sometimes antheriferous; style rarely surpassing the corolla-mouth, longer than the stamens or sometimes scarcely surpassing the lower ones, usually equaling the corolla-mouth, thickened at the apex, obscurely bilobed, glabrous; stigma punctiform; ovary 2-celled, each cell 1-ovulate; raphe ascending, terminating in an apical chalaza; fruiting-calyx persistent, rather fleshy, including the fruit, glabrous; fruit drupaceous, about 2.5 mm. long and 1.5 mm. wide, black and polished, usually 2-seeded, sometimes 4-seeded; nutlets dark-colored, hard, corneous, 1-celled.

This species inhabits the Andes Mountains, being found on dry river terraces, in open rocky slopes, on lake shores, and in the subalpine montane region, at altitudes of 160 to 1900 meters. It has been collected in anthesis from October to March and in July, and in fruit in December, February, and March. Common names are

"retama" and "retamo". Bullock reports that the Amerind name is "cau-cau-mamill" and the Chilean name is "retamilla". After flowering and fruiting the naked rachis and peduncles often persist at the terminations of the branchlets or in their furcations. The branches are often covered with tiny yellow elongate insect eggs. The leaf-blades seem to drop off readily in the dry season and photosynthesis is then carried on by the green branches and petiole-bases. Good fruit is seen on Comber 553, Lechler 615, and Werdermann 545. Sometimes 3--5 spikes are clustered at the apex of a branchlet -- one terminal and the others axillary in the axils of the uppermost pair of leaves or petiole-bases (cfr. Werdermann 545 at Kew). Comber 553 (from a wild plant) shows part of a heavy stem. This collector reports that the plant is a loose growing shrub "which may be good [in cultivation] when in full flower". Ball describes it as a shrub with the habit of Spartium junceum L.

Leaves that are coarsely but regularly dentate from the base to the apex are seen on Comber 553, cultivated in England, and on some specimens of wild material including the sheet of wild material of the same number from which seeds were taken to raise the cultivated specimens. Mostly, however, the leaves have only a few teeth above the middle or at the apex or else are entire. All three types of leaves are seen on some specimens, including Comber 553.

The Herb. Hort. Kew s.n. [June 16, '99], cited below from the Kew herbarium, is the specimen from which Bot. Mag. pl. 7695 was drawn. This plate is accompanied by an excellent and important discussion of the species. Gillies & Hooker mention two forms of the species: one with entire leaves and pubescent spikes, from near La Guardia in the valley of the Río Aconcagua, and the other with coarsely serrate leaves and glabrate spikes, from the Río del Diamante south of Mendoza. I regard the former as the type of the species (the isotype in the British Museum herbarium is labeled "var. α fol. integ."). The type of D. infuscata is C. Gay s. n. [Río Negro] in the Hooker Herbarium at Kew. The type of D. filifolia is a Germain collection from the Cordillera de Santiago in the Chilean Andes, deposited in the Miers and in the Hooker herbaria. D. stenophylla is based on Bridges 453 in the Miers herbarium, Cuming 282 in the Hooker and British Museum herbaria, and Bridges 1220, all from the Chilean Andes. The type of Lippia scirpea is a collection of W. Diaz from Paso de los Piuquenes, Chile, in the Philippi herbarium. Dipyrena valdiviana was based on C. Gay 174 and 381 from near Osorno, Valdivia, Chile; Miers cites Lechler 615 from Huiti, Valdivia, as this species. Philippi 781 and s.n. [Cord. d. Linares] are both labeled "Dipyrena dentata Ph.", but are apparently not the type collection -- the species being based on R. A. Philippi s.n. [Herb. Gay 2005]. The type of Citharexylum germaini is Ph. Germain s.n. from the Cordillera de Maule, Chile, deposited in the Delessert Herbarium at Geneva.

Moon points out that this specimen represents an entirely different genus from Baillonia Bocq., with which it has been confused - "My Coimbra specimen will convince anyone".

Boelche says of this species "Arbusto de unos 3--4 m de altura, que puede ser muy frecuente en la zona intermedia entre bosque y estepa. A menudo se observa que las plantas han sido ramoneadas con cierta intensidad en las partes inferiores que se hallan al alcance de los animales." Miss Mexia describes it as "common" at 1500 meters altitude in Curicó, and Aravena also calls it "common" in Curicó. Morrison, however, says that it is "not common on steep dry rocky west-facing slope in sparse chaparral" in Santiago. Junell reports that the species has a chromosome complement of $2n = 32$.

Specimens of this species have been misidentified in herbaria as Citharexylon alpinum Poepp., C. elegans Phil., Dipyrena glaberrima Hook., Lantana sp., Rhaphithamnus longiflorus Miers, Verbena ephedroides Cham., V. scoparia Hook., V. scoparia Gill. & Hook., and Verbena sp. Germain called it Verbena spathulata Gill., Philippi was of the opinion that it is the same as Dipyrena glaberrima (Gill. & Hook.) Hook., while Briquet compared it with Citharexylum berlandieri B. L. Robinson, with which it certainly hasn't the faintest resemblance. Junell, after studying the gynoeceum morphology, came to the conclusion that Diostea juncea is actually a Lippia, and that D. scoparia is actually a Verbena. Personally, I feel that it would be far from the biologic truth of the situation to separate these two obviously very closely related species so widely! The separate genus, Diostea, to hold the three species described herein, is much to be preferred.

The date of publication of Verbena juncea Gill. & Hook. in Hooker's Bot. Misc. is given as "1830" in Curtis, Bot. Mag. 126: pl. 7695 (1900) and by Rehder, Bibl. Cult. Trees (1949), but was actually 1829 according to H. S. Marshall in Kew Bull. 1936: 87 (1936). The name Baillonia juncea is usually accredited to "Benth. & Hook. f.", but is more accurately accredited to Bentham alone — Hooker himself so accredits it in Curtis, Bot. Mag. 126: pl. 7695 (1900), where he definitely states "Bentham, who elaborated the Verbenaceae for the 'Genera Plantarum'". It is accredited correctly also by Thiselton-Dyer, Ind. Kew. Suppl. 2: 23 (1904). Miers cites Dipyrena valdiviana to Linnaea 29: 31, but the plant is actually described on pages 21—22 of that volume, not on page 31.

In all, 181 herbarium specimens, including the types or phototypes of all the names involved, and 20 mounted photographs have been examined.

Citations: CHILE: Acancagua: Ball s.n. [1882] (K); Claude-Joseph 2532 (W—1189251); Gillies s.n. [near La Guardia] (Bm—iso-type, K—type, M—photo of type, Z—photo of type); Looser 4005 (N); MacRae s.n. [Cumbre Pass] (Br, K); Poeppig II.84 (B, Bm, P). Atacama: Herb. Mus. Nac. Santiago 18 (N); Philippi & Borchers s.n.

[Bafios, Chillam, Francas, 10/1/83] (Bm), s.n. [Río Colorado, Los Andes, 10/1/86] (Bm); Poeppig 557 (V, X), s.n. [Andes, Novbr. 1927] (E--117468). Bio-Bío: Neger s.n. [Copahué] (Mu--3970). Cautin: Morrison & Wagenknecht 17509 (Ca--636398). Curicó: Aravena 33375 (Ca--13805); Mexia 7878 (F--1010962, Go, N, S); Werdermann 545 (B, Ca--278746, G, Gg--129907, K, N, S, W--1541061), 1668 (B). Linares: A. Philippi 781 (B); R. A. Philippi s.n. [1861] (X). Llanquihue: Reiche s.n. [Thal des ob. R. Manso, II.96] (B, B, F--639982). Malleco: Looser 2743 (N). Maule: C. Gay 381 (N--photo, P, Z--photo); Germain s.n. [Cordilleres de Maule, 1855] (Bm, Cb, Cb, E--photo, K, N--photo, N--photo, S--photo, W--photo, X, Z--photo). Nuble: Behn s.n. [7-12-1945] (N); Berninger 187a (B). Santiago: Caldeleux s.n. [Santiago de Chili] (Cb); G. T. Hastings 367 (Ca--66366, It, W--530274); Looser 4006 (N); J. L. Morrison 16781 (Ca--632897, S); R. A. Philippi s.n. [Herb. C. Gay 2005; Herb. Mus. Nac. Hist. Nat. Chile 42412] (N--photo); Skottsberg & Sparre 11069 (S). Talca: R. A. Philippi s.n. [Talca, 1888] (B, K, W--1322925). Valdivia: D. S. Bullock s.n. [Catri-pulli, 28 Feb. 1905] (Bm); Claude-Joseph 2719 (W--1198651); C. Gay 174 (E--photo, N--photo, P, Z--photo), s.n. [Río Negro] (K, N--photo, Z--photo); Hollermayer 554 (B), 1376 (B, K, N, W--1472375), s.n. [Werdermann 1376] (Ca--323107, E--940229, Gg--149918, S); Lechler 615 (B, Bm, K, N, N--photo, Ol, P, S, S, Si--photo, X, Z--photo); R. A. Philippi 807 (Bm, L, P, S), s.n. [Valdivia, 1862] (Cb, X), s.n. [Valdivia, 1876] (B, B), s.n. [Andes de Valdivia, 1888] (B), s.n. (K). Valparaiso: Bridges 460 (Bm, K, K), s.n. (K); Cuming s.n. [Valparaiso] (Cp). Province undetermined: Bridges 45 (B), s.n. (Br); Claude-Joseph 5805 [Curarehue] (W--1498937); Comber 553 [Rengoli] (Ed, K, K); Cuming 225 [Cordilleras] (Bm, Ed, K, K), 261 (Bm, Ed, K, K); W. Diaz s.n. [Herb. Mus. Nac. Hist. Nat. Chile 42407] (N--photo); C. Elliot 221 [Río Blanco] (K); G. F. S. Elliot 420 [Río Blanco] (B, Bm, Ed); C. Gay 943 (P), s.n. [Baper Cordilleres, 1833] (Cb), s.n. (Cb, F--998388, P); Germain s.n. [Quilatta] (K); MacRae s.n. [Cordillera] (K); E. C. Reed s.n. [Semita] (K); Sargent s.n. [near Baths of Tolanca, Río Blanco, Jan. 16, 1905] (A, Pr); Wilczek 39 [Val. Tuiguiritica] (Cb). ARGENTINA: Chubut: Castellanos s.n. [Herb. Inst. Miguel Lillo 118404] (S); Illin 102 (Br, Ca--50435, N, Sp--24005), 112 (Ca--149579), s.n. [Stuckert 18204] (Cb); Martinez Crovetto 3210 (N); T. Meyer 9648 (S); Soriano 1372 (N). Mendoza: Herb. Miers s.n. [Villa Vicencio, Paramó de Mendoza] (Bm); Moseley s.n. [Sta. Rosa de los Andes to Uspallata Pass] (Bm, K); R. A. Philippi s.n. [Andes Mendocinae] (B, B). Neuquen: Scolnik 218 (W--2045579). Río Negro: Buchtien s.n. [Baenitz 1346; Herb. Osten 5892; San Carlos de Bariloche, 6/II/1905] (Cb, Ed, Ed, F--495370, G, La, Le, Le, Mu--4169, N, Ol, S, Ug, W--

1177975); Burkart 6529 [Herb. Mus. Argent. Cienc. Nat. 12348] (N); Cabrera & Job 54 (N, S), 313 (N); Chicchi 226 (N); Cordini 107 (N), 254 (W--1617527); De Barba 933 (N), 1161 (N), 1408 (N), 1436 (N), 1494 (N); Ljungner 137 (Go), 675 (Go, N); T. Meyer 7472 (N), 7849 (S); Parodi 11389 (G); Teague s.n. [9-XII-1946] (N, S). Santa Cruz: Moreno & Tonini 341 (N). CULTIVATED: California: Walther s.n. [Golden Gate Park, July 1933] (A, Gg--204283), s.n. [Golden Gate Park, May 1935] (Gg--222616). England: W. J. Bean s.n. [Arb. Kew. 1-6-20] (A); C. H. Grey s.n. (N); Herb. Hort. Kew. s.n. [June 16, 1899] (K); Hort. Nymans s.n. [1929; from seeds of Comber 553] (K).

DIOSTEA SCOPARIA (Gill. & Hook.) Miers, Trans. Linn. Soc. Lond. Bot. 27: 104--105. 1870.

Synonymy: Verbena scoparia Gill. & Hook. in Hook., Bot. Misc. 1: 161, pl. 47. 1829. Verbena scoparia Hook. & Gill. ex Miers, Trans. Linn. Soc. Lond. Bot. 27: 104, in syn. 1870. Diostea scoparia Miers ex Jacks., Ind. Kew. 1: 768. 1893. Lippia aphylla R. A. Phil., Anal. Univ. Chile 90: 623. 1896. Verbena scoparia Hook. ex Moldenke, Alph. List Invalid Names Suppl. 1: 26, in syn. 1947. Verbena scoparium Gill. & Hook. ex Moldenke, Résumé Suppl. 2: 13, in syn. 1960.

Literature: Hook., Bot. Misc. 1: 161, pl. 47. 1829; Walp., Repert. Bot. Syst. 4: 16 & 78. 1845; C. Gay, Hist. Fis. Chile Bot. 5: [20]. 1849; Schau. in A. DC., Prodr. 11: 544. 1849; R. A. Phil., Anal. Univ. Chil. 35: 192. 1870; Miers, Trans. Linn. Soc. Lond. Bot. 27: 104--105. 1870; Griseb., Symb. Fl. Argent. 276. 1879; Jacks., Ind. Kew. 1: 768 (1893) and 2: 1179. 1895; R. A. Phil., Anal. Univ. Chil. 90: 623. 1896; Reiche, Fl. Chile 5: 282. 1910; Skottsberg, Kungl. Svensk. Vetens. Handl. 56 (5): 292. 1916; Sanzin, Anal. Soc. Cient. Argent. 88: 122--123. 1919; Stapf, Ind. Lond. 6: 431. 1931; Junell, Symb. Bot. Upsal. 4: 11--13, 15, & 37, fig. 7. 1934; Moldenke, Geogr. Distrib. Avicenn. 29. 1939; Moldenke, Lilloa 5: 388--389. 1940; Moldenke, Prelim. Alph. List Invalid Names 48. 1940; Moldenke, Suppl. List Common Names 6 & 7. 1940; Moldenke, Suppl. List Invalid Names 5. 1941; Moldenke, Alph. List Invalid Names 29 & 50. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 42, 43, & 92. 1942; Moldenke, Lilloa 10: 369. 1944; Moldenke, Phytologia 2: 102. 1944; Moldenke, Alph. List Cit. 1: 59, 96, 120, 131, 135, 166, 190, 230, 233, 235, 251, & 276. 1946; Moldenke, Alph. List Invalid Names Suppl. 1: 26. 1947; Moldenke, Alph. List Cit. 2: 367, 369, 372, 443, 504, 535, 537, 599, & 600 (1948), 3: 671, 731, 750, 772, 781, 802, 813, 843, & 910 (1949), and 4: 1070, 1090, 1115, 1187, & 1191. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 100, 103, & 185. 1949; H. N. & A. L. Moldenke, Anal. Inst. Biol. Mex. 20: 6. 1949; Moldenke, Phytologia 6: 255. 1958; Moldenke, Résumé 120, 123, 278, 310, 374, & 454. 1959; Moldenke, Résumé Suppl. 2: 8 & 13. 1960.

Illustrations: Hook., Bot. Misc. 1: pl. 47. 1829; Sanzin, Anal.

Soc. Cient. Argent. 88: 123. 1919; Junell, Symb. Bot. Upsal. 4: fig. 7. 1934.

Bush or shrub, to 1.5 m. tall; stems rather glaucous-ribbed; branches and branchlets Ephedra-like, terete or subterete, erect, longitudinally many-striate or sulcate, green when fresh, nigrescent in drying, very twiggy, especially above, glabrous throughout or very minutely and obscurely pulverulent; twigs abundant, erect, often clustered above, turning abruptly upwards, often parallel with the branchlets, straight and stiff, very minutely and obscurely puberulent; nodes distinctly annulate, often slightly contracted, on larger branches bearing a pair of small opposite scale-like organs (morphologically the petiole-bases) which are scarious or stramineous, appressed or spreading, triangular, 1 mm. long or less, often connected with each other by a narrow scarious membrane, glabrous; principal internodes 1--6 cm. long; leaves very small, decussate-opposite, caducous, seldom seen on dried material; petioles very short and slender, ampliate at the base, the base persisting after the rest of the leaf has fallen, forming a more or less thickened scale-like organ; leaf-blades thick, varying from linear-oblong or elliptic to obovate or spatulate, 3-4 mm. long, about 2 mm. wide, obtuse or acute at the apex, cuneate at the base, glabrous on both surfaces, nigrescent, entire or obscurely subdentate with 1 or 2 tiny teeth near the apex; midrib and other venation indiscernible on both surfaces; inflorescences terminal, spicate, often terminating every twig; spikes 1.5--6.5 cm. long, 1--2 cm. wide during anthesis, densely many-flowered, sessile or very short-pedunculate, the peduncle and rachis not continuous with the twigs but not differing noticeably from them until after the fruits have fallen when they turn dry and light-gray, minutely puberulent like the twigs and similar to them in all respects but abruptly more slender, or glabrous; flowers arranged in many opposite pairs, usually crowded, appressed or spreading, fragrant or strong-scented, sometimes erect; sympodia (except sometimes the lowermost) much abbreviated; prophylla small, ovate or subovate, scale-like, appressed, persistent, acute or acuminate at the apex or subulate, from less than 2 mm. to half as long as the calyx, rigidly puberulent; pedicels short or very short; calyx erect, 4--6 mm. long, plicate and 5-angled, short-tubular or cylindric, rigidly puberulent or subpuberulent, later glabrescent, the rim shortly 5-dentate, the teeth subulate, unequal, the posterior one shorter; corolla subinfundibular, spreading or bending downwards, varying from pale-pink or rose to lilac, clear-lilac, or violet, sometimes blue or white, nigrescent in drying, often with the tube pink and the lobes dingy-white, usually about 4 times as long as the calyx, glabrous on the outside, its tube about 8 mm. long or twice as long as the calyx, cylindric at the base, varying from recurved or slightly incurved to curving sigmoidly outwards, ampliate above, slightly swollen beneath the mouth, parallel-veined, retrorsely pilose on the anterior side on the inner surface, the throat villosulous, the limb 5-parted, rather large, expanded, the lobes oblong, about 2 mm. long, slightly wider above, subemarginate at the apex; stamens included; fila-

ments very slender-filiform; anthers sagittate, acuminate; staminode sterile, anantherous, very distinct but easily overlooked because of its tenuity; style scarcely exerted, usually just equalling the corolla-mouth, dilated and curved at the apex; ovary 2- or 4-celled; fruit 2- or 4-seeded, subequalling the calyx, long, narrow, schizocarpous.

The type of this very distinct species was collected by John Gillies in valleys near Villavicencio, Mendoza, Argentina, on February 28, 1821, and is deposited in the herbarium of the Royal Botanic Gardens at Kew. Another unnumbered collection in the Lund herbarium, labeled merely "Andes of Chile and Mendoza" is probably part of the same collection or may be a cotype collection. The type of Lippia aphylla was collected by Augusto Borchers, the ornithologist, at Campana de Quillota, Aconcagua, Chile, in 1884.

The species is said to inhabit barrancas, steep rocky slopes, mountains, lake shores, rocks near rivers, and the edges of highways, growing at altitudes from 200 to 2700 meters. It has been collected in anthesis from September to March and in May, and in fruit in January. If the fruits as preserved in a packet in the Britton Herbarium at the New York Botanical Garden are actually from this plant, they are quite different from those of D. juncea, being long, narrow, and schizocarpous as in Bouchea Cham. Fruit is apparently seldom seen, certainly seldom collected, but the characters of the rachis and the pronounced nigrescence of the plant and usual absence of leaves easily distinguish it from D. juncea. It is described by Nicora as very common in parts of Mendoza. Vernacular names are "clavello [=pink] del campo", "clavellilo del campo", "escobilla [=broom] del campo", and "verbena". Specimens have been misidentified in herbaria as Lippia sp., Verbena aphylla Gill. & Hook., V. ephedroides Cham., and V. juncea Gill. & Hook.

Walpers places Citharexylon alpinum Poepp. and Citharexylum ? alpinum Poepp. in the synonymy of this species, but these names properly belong in the synonymy of D. cinerascens, as indicated by Schauer. Schauer cites Bridges 47 and J. Style s.n. from the Chilean Andes, but I have not as yet seen these collections. Someone has appended a note to the sheet of Reed 175: "Diostea scoparia Miers, but a true Verbena, ovary 4-celled". Junell agrees with this statement.

In all, 72 herbarium specimens, including the types or phototypes of all the names involved, and 5 mounted photographs have been examined.

Citations: CHILE: Aconcagua: Borchers s.n. [Campana de Quillota, 1884; Herb. Mus. Nac. Chile 54829] (N--photo); Buchtien s. n. [Junca, Uspallata Pass, 33° S. lat., 2.2.1903] (N, S); C. Elliot 158 (K, N); Philippi & Borchers s.n. [Cerro Campana, 15/11/84] (Bm). Colchagua: Meyen s.n. [Cord. de St. Fernando, 3/31] (Br, K). Coquimbo: Looser 2207 (N); Worth & Morrison 16692 (Ca--633189, S). Santiago: Bridges s.n. [Cord. de Santiago] (Br, S);

C. Gay s.n. [Chili, Plata, entre S. Jago et Cordova] (P); Germain s.n. [Cord de Santiago] (Cb, K); Grandjot & Grandjot s.n. [XI. 1933] (N); Werdermann 488 (Ca--278847, Gg--129903, K, N, S). Valparaiso: Bridges s.n. [Valparaiso] (K, N). Province undetermined: Bridges 459 (K); Comber 412 [Pucacharole] (K); Cruckshanks 97 [Ojos de Azua] (K, N); Cuming 226 (Br, K); Drummond 226 [Cordilleras] (Bn); C. Elliot 649 (K); Herb. Bentham s.n. [Chili] (G); Herb. Univ. Christianiense s.n. [E. Chili] (Ol). ARGENTINA: Catamarca: Castillón 9363 [Herb. Osten 8457] (Ug); Jørgensen 1403 [Herb. Osten 10678] (G, G, N--photo, Sp--25788, Sp, Ug, Z--photo), s.n. [Herb. Inst. Biol. S. Paulo 20062; Herb. Osten 10678] (N); Schreiter 10508 [Herb. Inst. Miguel Lillo 6795] (N); Venturi 6720 (W--1591496). La Rioja: Hieronymus & Niederlein 614 (K). Mendoza: Barkley 19Ar854 (N), 19Ar855 (N, Ug); Bodenbender 16 [F. Kurtz 10011; Herb. Osten 13028] (Ug); Cáceres & Paci 248 (N); Castellanos s.n. [Herb. Mus. Argent. Cienc. Nat. 36850] (N); Cuezzo & Balegno 1900 (N), 1923 (S); Gillies s.n. [Andes of Chile & Mendoza] (Lu--cotype), s.n. [Villavicencio] (K--cotype, N--photo of cotype, Z--photo of cotype); Moseley s.n. [Sta. Rosa de los Andes to Uspallata Pass] (K); Nicora 4339 (N), 4361 (N); Reales 2024 (Vi); E. C. Reed 175 (K); Ruiz Leal 1023 (N), 1885 (N), 2873 (N), 3632 (N), 4070 (N), 4374 (N), 5441 (N), 6923 (N); Sanzin s.n. [Herb. Osten 12805] (Ug); Semper s.n. [Ruiz Leal 4168] (N), s.n. [Ruiz Leal 6298] (N), s.n. [Ruiz Leal 8211] (N). Río Negro: De Barba 375 (Ca). Tucumán: Pearce s.n. [Aconquija, Dec. 1863] (K).
